JUPITER® 200

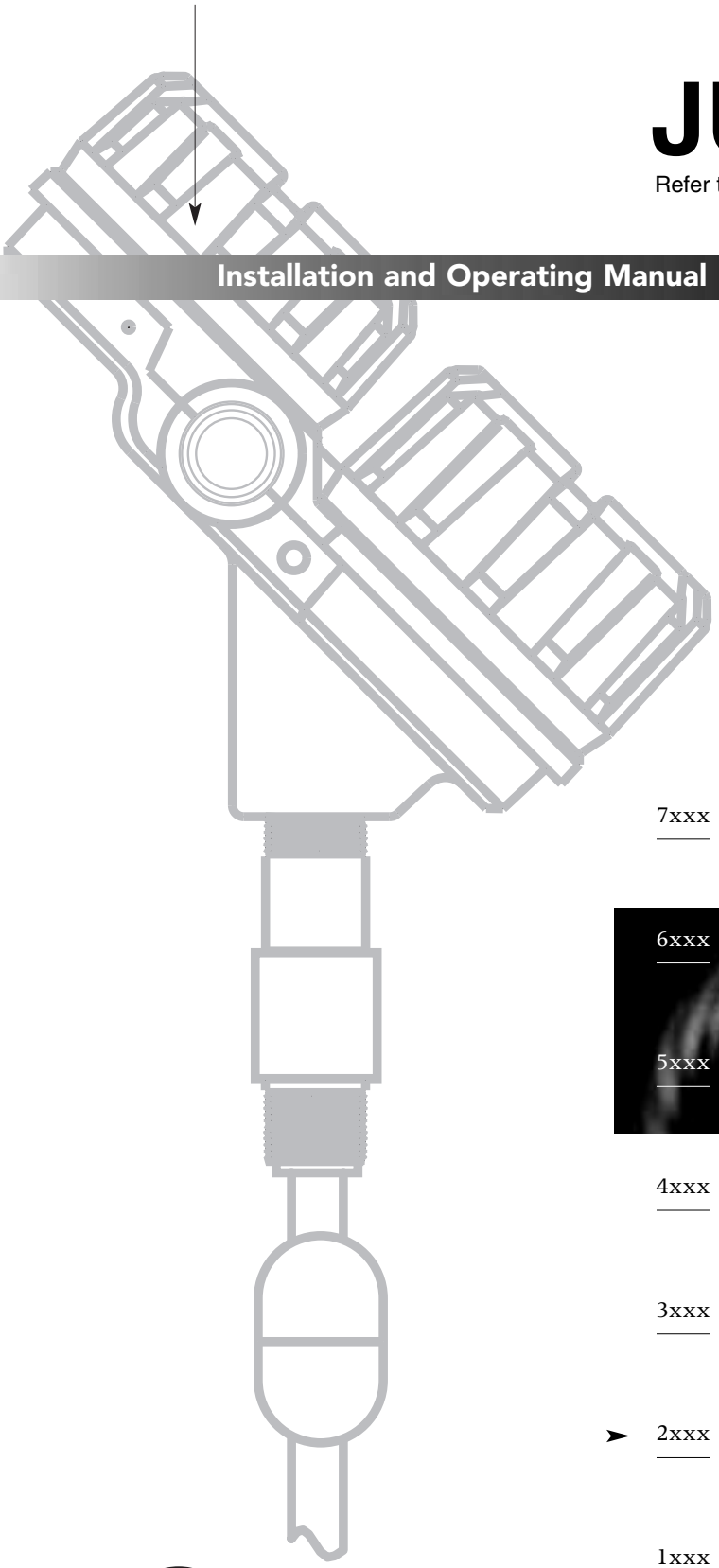
Refer to bulletin 46-649 for Jupiter® 200 with Fieldbus Foundation

Installation and Operating Manual

Magnetostrictive

Level

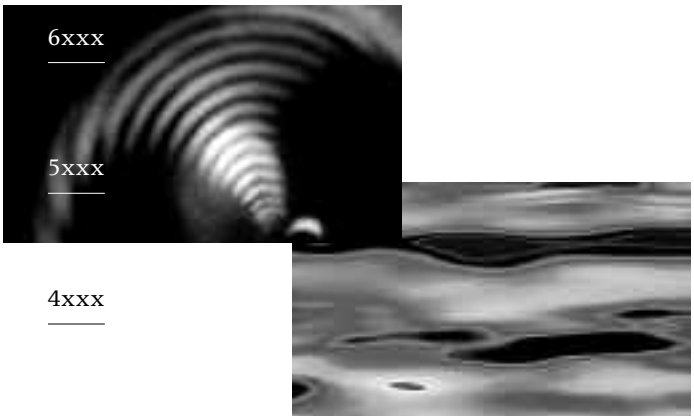
Measurement



7xxx

6xxx

5xxx



4xxx

3xxx

2xxx

1xxx

Magnetrol®

UNPACKING

Unpack the instrument carefully. Make sure all components have been removed from the foam protection. Inspect all components for damage. Report any concealed damage to the carrier within 24 hours. Check the contents of the carton/crates against the packing slip and report any discrepancies to Magnetrol. Check the nameplate model number (Model number/approvals as per inserted separate sheet) to be sure it agrees with the packing slip and purchase order. Check and record the serial number for future reference when ordering parts.

These units are in conformity with the provisions of:

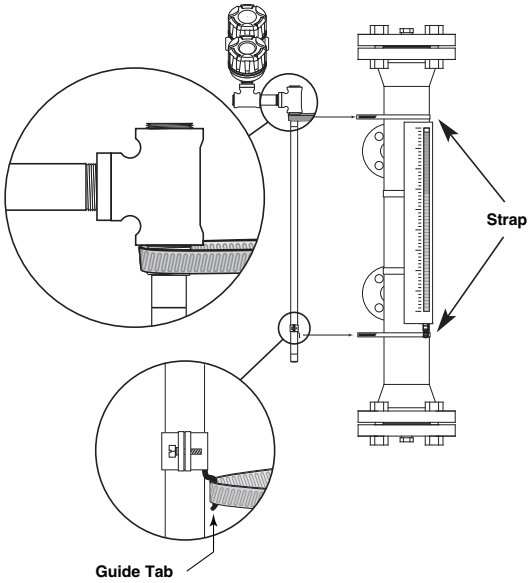
1. The EMC Directive: 89/336/EEC. The units have been tested to EN 61000-6-4/2001 and EN 61000-6-2/2001.
2. Directive 94/9/EC for Equipment or protective system for use in potentially explosive atmospheres. EC-type examination certificate number ISSEP06ATEX024X (intrinsic safe units) or ISSEP06ATEX010 (EEx d units).

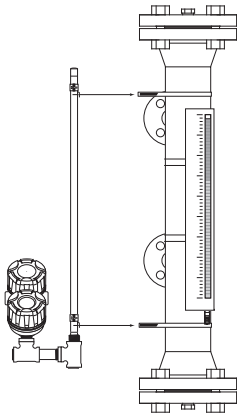
3. The PED directive 97/23/EC (pressure equipment directive). Safety accessories per category IV module H1.

MOUNTING

External Mount Model

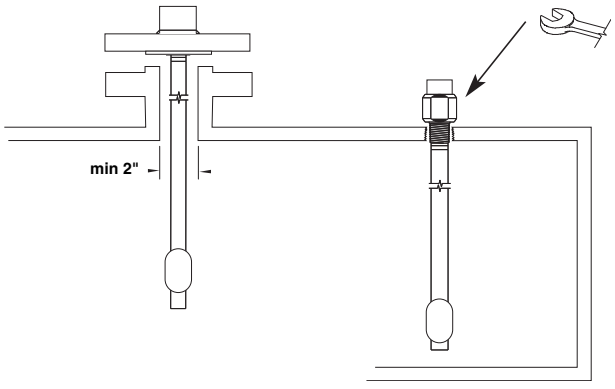
Note: if ordered from the factory with the Magnetic Level Indicator the transmitter will be attached to the gauge and configured for the application.

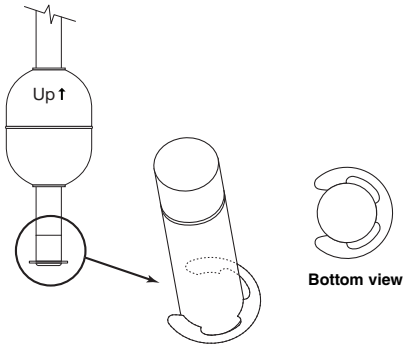




CAUTION: do not rotate the housing. This may cause damage to the sensor cables.

Direct Insertion Model

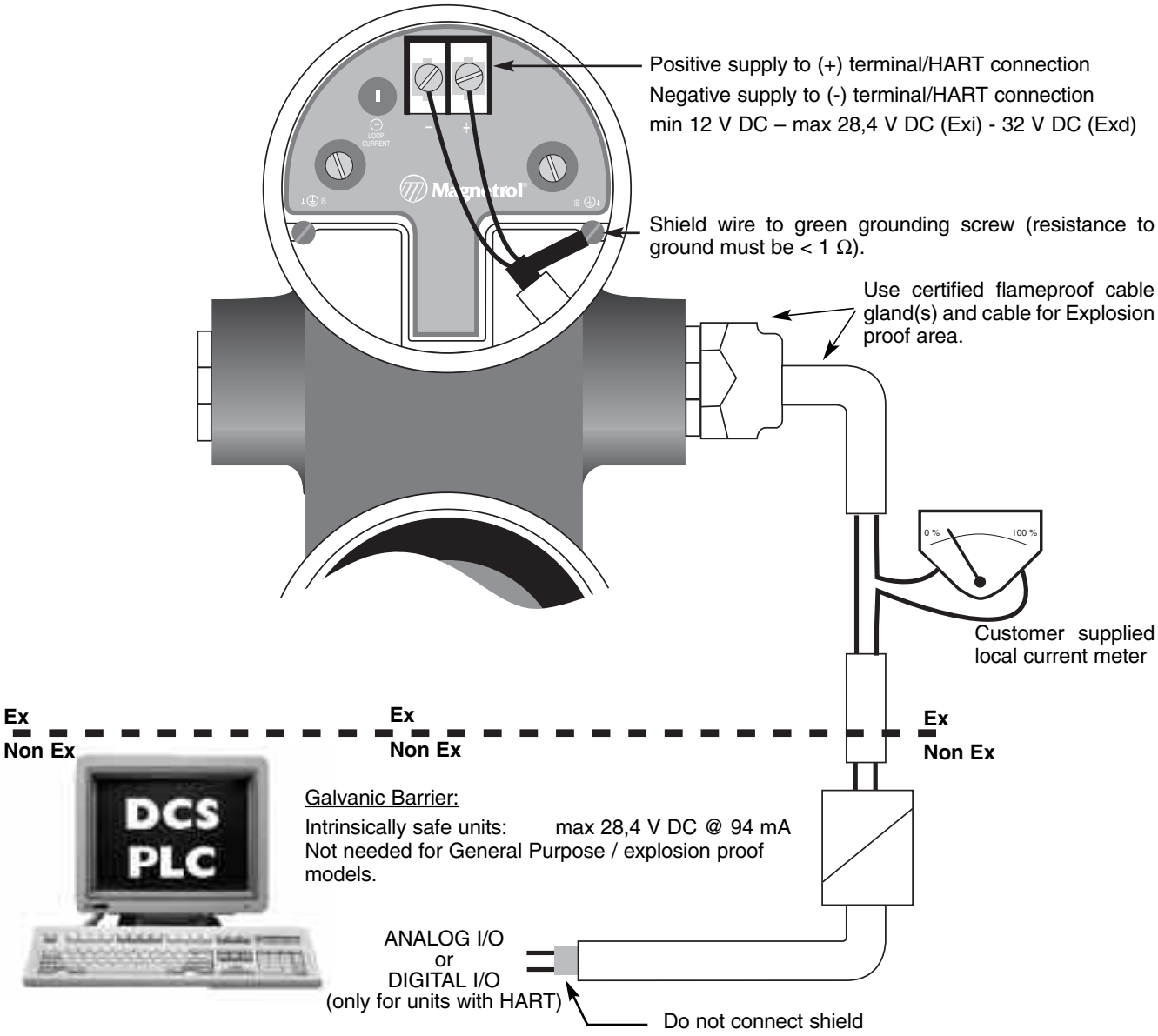




Float attachment detail

WIRING

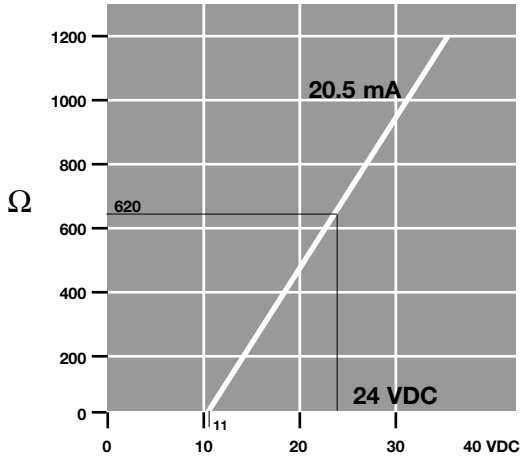
CAUTION: power must be switched OFF before wiring the unit.



IMPORTANT:

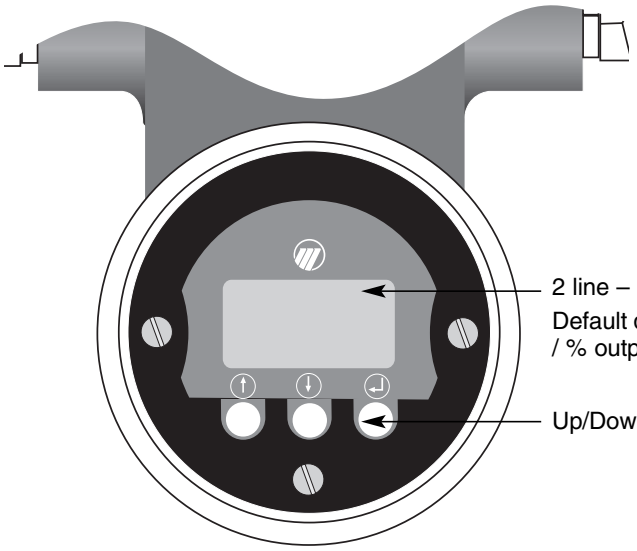
The shield wire should only be grounded at ONE side only. It is recommended to connect the shield to ground in the field (at the transmitter side - as shown above) but connecting in the control room is also allowed.

LOOP RESISTANCE



CONFIGURATION

NOTE: When connected to an approved barrier, the intrinsically safe electronics of the Jupiter® 200 allow to remove the covers with power switched on – even if the area is known to be hazardous



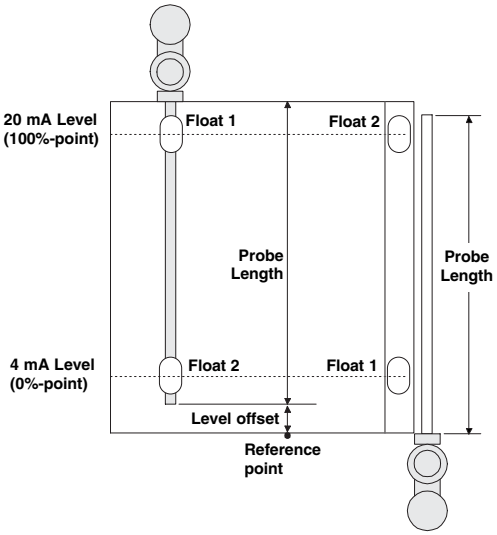
Display	Comment	
Units! cm	Press ↵:	The last character on the first line of the display changes to «!». This sign confirms that the values/choices of the second line can be modified via the ↓ and ↑ push buttons.
Units! **cm**	Press ↑ ↓	* Scroll through the choices or increase/decrease the values on the second line of the display by ↓ and ↑ pushbuttons. * Accept values/choices as selected by ↵ pushbutton.
Units cm	Press ↑ ↓	Scroll through the menu.

PASSWORD

DISPLAY	ACTION/	COMMENT/
Ent Pass 0	Display shows «0»	Factory default setting Data is not protected
Ent Pass! 1	Press ↵ and last character changes into «!» Enter your personal password with ↑ and ↓ (any value between 1 and 255) Press ↵ to confirm	Setting password
	Press ↵ and enter old password Press ↵ and last character changes into «!» Enter your new password with ↑ and ↓ (any value between 1 and 255) Press ↵ to confirm	Changing password
New Pass 4096	Display shows an encrypted value, enter your password or call Magnetrol for assistance to recoop your password if necessary	Data is protected by a valid Password

NOTE: Password protection is activated when after 5 minutes no keystrokes are sensed.

TERMINOLOGY

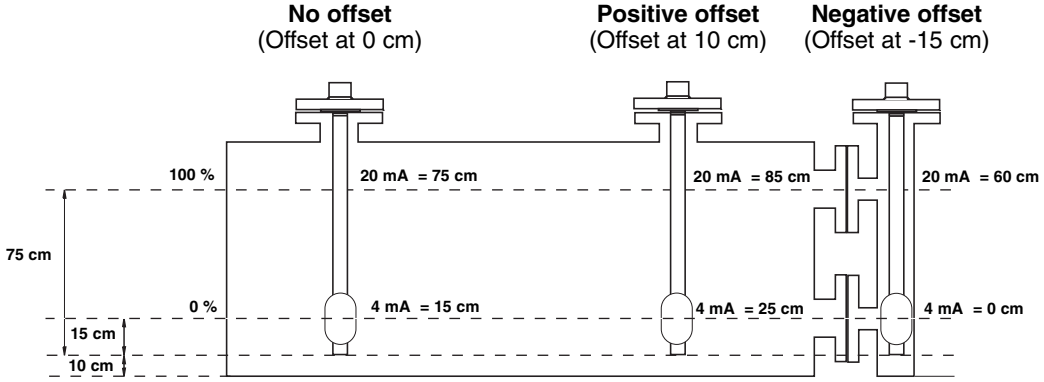


Level Offset = ☐ cm or inches
The offset is the distance between reference point (e.g. bottom of tank) and end of probe. From the reference point both 4 mA and 20 mA levels are calibrated. When offset is set at zero, the end of the probe is the reference point.

4 mA Level = ☐ cm or inches
or zero level point, is measured from the reference point. The unit with SIL enhanced electronics has a diagnostic zone at the bottom of the probe.

20 mA Level = ☐ cm or inches
or 100 % level point, is measured from the reference point.

Probe length = ☐ cm or inches, record the exact probe length as printed on the nameplate: 2xx-xxx-xxM-xxx



BEFORE STARTING

Start from run mode:

1. Select the desired language for configuration: English or Spanish in the language screen (22 or 25) «`language`». Scroll up for quickly reaching the language selection screen.
2. Define type of measurement:
   a. Level only (pages 6 & 7)
   b. Interface only (pages 8 & 9)
   c. Interface and Level (pages 10 & 11)
   d. Level and Interface (pages 11 & 12)
   Scroll down until the screen reads «`MeasType`». The unit will now show only the applicable screens for the selected type of measurement.
3. Scroll one screen down and select the applicable engineering unit in «`Units`», all configuration values will be entered in that engineering unit.
4. Refer to the configuration procedure of the selected type of measurement.
5. Refer to page 14 for all hidden diagnostic screens. These screens allow the advanced user to configure the unit for special applications or to troubleshoot the unit in the field. It is NOT recommended to access this toolset without proper guidance or having followed proper training.

MENU: STEP BY STEP PROCEDURE – Jupiter 200: Level only – Loop signal (PV) is Level

	Screen	Action	Comment
Run mode	① *Status* *Level* *%Output* *Loop*	Transmitter Display	Transmitter default values cycle every 8 seconds. Status «Status», Volume «Volume», % Output «% Output», and Loop «Loop».
	② Level xxx.xx	Transmitter Display	Transmitter displays Level Value in selected engineering units.
	③ %Output xx.xx	Transmitter Display	Transmitter displays % Output measurement derived from 20 mA span.
	④ Loop xx.xx mA	Transmitter Display	Transmitter displays Loop measurement (mA).
Configuration	⑤ MeasType (select)	**Select** the type of measurement	Select level «Lvl only».
	⑥ Units (select)	**Select** units for level	cm «cm» or inches «inches».
	⑦ Probe Ln xxx.xx	**Enter** the exact length of probe	Enter as per the 3 last digits of the probe partnumber on the nameplate: From 15 cm up to 999 cm e.g. 242-D111-AAM-280, enter «280» cm probe length.
	⑧ Set 4mA xxx.xx	**Enter** the PV for 4 mA	Enter 4 mA level point, measured from reference point in selected level units.
	⑨ Set 20mA xxx.xx	**Enter** the PV for 20 mA	Enter 20 mA level point, measured from reference point in selected level units.
	⑩ Lvl Ofst xxx.xx	**Enter** the offset value	When entering configuration values from the end of the probe is cumbersome, an offset can be introduced to determine a new reference point. This reference point can be either below the probe (positive offset) or at the probe (negative offset). See page 5 “Terminology”.
	⑪ Damping xx.x s	**Enter** the damping factor.	A Damping factor (1-25 seconds) may be added to smooth a noisy display and/or output due to turbulence. Below 15 s = 0,1 s increments. Above 15 s = 1 s increments.
	⑫ Fault (Select)	**Enter** the value for error.	Select «3.6 mA», «22 mA» or hold last value «HOLD». In case of loop failure, error signal will follow the failing trend; meaning the unit will show 3.6 mA when the reviewed loop current by the device is found too low. The unit will show 22 mA in case the reviewed loop current is found too high.
	⑬ Poll Adr xx	Enter HART ID number.	Select a HART poll address (0-15). Enter 0 for a single transmitter installation.

= **Quick Start up**

MENU: STEP BY STEP PROCEDURE – Jupiter 200: Level only

	Screen	Action	Comment
Diagnostics	⑭ Trim 4 xxxx	Fine tune the 4 mA point.	Attach a mA meter to the output. If the output does not equal 4.0 mA, adjust the value on the display to equal 4.00 mA.
	⑮ Trim 20 xxxx	Fine tune the 20 mA point.	Attach a mA meter to the output. If the output does not equal 20.0 mA, adjust the value on the display to equal 20.00 mA.
	⑯ Loop Tst xx.x mA	Enter a mA output value.	Set mA Output to any given value to perform loop test.
	⑰ Deadband xx.x	None, do not adjust.	Factory setting.
	⑱ Snsr Mnt (select)	Select the type of mounting.	«MLI Top» External mount Jupiter – Top mounted Jupiter «MLI Bot» External mount Jupiter – Bottom mounted Jupiter «Dir Near» Direct mount Jupiter – NPT, BSP and Flanged ≤ 600 lbs / PN160 «Dir Ext» Direct mount Jupiter – Flanged ≥ 900 lbs / PN250
	⑲ Trim Lvl xx.xx	Enter value to adjust level reading.	Allows to compensate for a fixed level deviation.
	⑳ F1 Cnts xxxx	Diagnostic display.	Shows time of flight from the start pulse to reflected signal from level.
	㉑ New Pass xxx	Enter new password.	Use arrows to select desired value. Values between 0 and 255.
	㉒ Language (select)	Select language	Select «English» or «Espagnol».
	㉓ JupiterHT Ver 3.0A	None, do not adjust.	Factory setting. «Ver» refers to software version.
	㉔ DispFact (select)	Advanced diagnostics.	See page 14.

MENU: STEP BY STEP PROCEDURE – Jupiter 200: Interface only – Loop signal (PV) is Interface Level

		Screen	Action	Comment
Run mode	①	*Status* *IfcLevel* *%Output* *Loop*	Transmitter Display	Transmitter default values cycle every 8 seconds. Status «Status», Volume «Volume», % Output «% Output», and Loop «Loop».
	②	IfcLevel xxx.xx	Transmitter Display	Transmitter displays Interface Value in selected engineering units.
	③	%Output xx.xx	Transmitter Display	Transmitter displays % Output measurement derived from 20 mA span.
	④	Loop xx.xxx mA	Transmitter Display	Transmitter displays Loop measurement (mA).
Configuration	⑤	MeasType (select)	**Select** the type of measurement	Select Interface «Ifc only».
	⑥	Units (select)	**Select** units for level	cm «cm» or inches «inches».
	⑦	Probe Ln xxx.xx	**Enter** the exact length of probe	Enter as per the 3 last digits of the probe partnumber on the nameplate: From 15 cm up to 999 cm e.g. 242-D111-AAM-280, enter «280» cm probe length.
	⑧	Set 4mA xxx.xx	**Enter** the PV for 4 mA	Enter 4 mA level point, measured from reference point in selected level units.
	⑨	Set 20mA xxx.xx	**Enter** the PV for 20 mA	Enter 20 mA level point, measured from reference point in selected level units.
	⑩	Lvl Ofst xxx.xx	**Enter** the offset value	When entering configuration values from the end of the probe is cumbersome, an offset can be introduced to determine a new reference point. This reference point can be either below the probe (positive offset) or at the probe (negative offset). See page 5 “Terminology”.
	⑪	Damping xx.x s	**Enter** the damping factor.	A Damping factor (1-25 seconds) may be added to smooth a noisy display and/or output due to turbulence. Below 15 s = 0,1 s increments. Above 15 s = 1 s increments.
	⑫	Fault (Select)	**Enter** the value for error.	Select «3.6 mA», «22 mA» or hold last value «HOLD». In case of loop failure, error signal will follow the failing trend; meaning the unit will show 3.6 mA when the reviewed loop current by the device is found too low. The unit will show 22 mA in case the reviewed loop current is found too high.
	⑬	Poll Adr xx	Enter HART ID number.	Select a HART poll address (0-15). Enter 0 for a single transmitter installation.

= Quick Start up

MENU: STEP BY STEP PROCEDURE – Jupiter 200: Interface only – Loop signal (PV) is Interface Level

	Screen	Action	Comment
Diagnostics	⑭ Trim 4 xxxx	Fine tune the 4 mA point.	Attach a mA meter to the output. If the output does not equal 4.0 mA, adjust the value on the display to equal 4.00 mA.
	⑮ Trim 20 xxxx	Fine tune the 20 mA point.	Attach a mA meter to the output. If the output does not equal 20.0 mA, adjust the value on the display to equal 20.00 mA.
	⑯ Loop Tst xx.x mA	Enter a mA output value.	Set mA Output to any given value to perform loop test.
	⑰ Deadband xx.x	None, do not adjust.	Factory setting.
	⑱ Snsr Mnt (select)	Select the type of mounting.	«MLI Top» External mount Jupiter – Top mounted Jupiter «MLI Bot» External mount Jupiter – Bottom mounted Jupiter «Dir Near» Direct mount Jupiter – NPT, BSP and Flanged ≤ 600 lbs / PN160 «Dir Ext» Direct mount Jupiter – Flanged ≥ 900 lbs / PN250
	⑲ Trim Ifc xx.xx	Enter value to adjust interface reading.	Allows to compensate for a fixed level deviation.
	⑳ F1 Cnts xxxx	Diagnostic display.	Shows time of flight from the start pulse to reflected signal from level.
	㉑ New Pass xxx	Enter new password.	Use arrows to select desired value. Values between 0 and 255.
	㉒ Language (select)	Select language	Select «English» or «Espagnol».
	㉓ JupiterHT Ver 3.0A	None, do not adjust.	Factory setting. «Ver» refers to software version.
	㉔ DispFact (select)	Advanced diagnostics.	See page 14.

MENU: STEP BY STEP PROCEDURE – Jupiter 200: Interface and Level – Loop signal (PV) is Interface Level

		Screen	Action	Comment
Run mode	①	*Status* *Level* *%Output* *Loop*	Transmitter Display	Transmitter default values cycle every 8 seconds. Status «Status», Volume «Volume», % Output «% Output», and Loop «Loop».
	②	IfcLevel xxx.xx	Transmitter Display	Transmitter displays Interface Level Value in selected engineering units.
	③	%Output xx.xx	Transmitter Display	Transmitter displays % Output measurement derived from 20 mA span.
	④	Loop xx.xx mA	Transmitter Display	Transmitter displays Loop measurement (mA).
	⑤	Level xxx.xxx	Transmitter Display	Unit displays locally top liquid level.
Configuration	⑥	MeasType (select)	**Select** the type of measurement	Select Interface and level «Ifc&Lvl».
	⑦	Units (select)	**Select** units for level	cm «cm» or inches «inches».
	⑧	Probe Ln xxx.xx	**Enter** the exact length of probe	Enter as per the 3 last digits of the probe partnumber on the name-plate: From 15 cm up to 999 cm e.g. 242-D111-AAM-280, enter «280» cm probe length.
	⑨	Set 4mA xxx.xx	**Enter** the PV for 4 mA	Enter 4 mA level point, measured from reference point in selected level units.
	⑩	Set 20mA xxx.xx	**Enter** the PV for 20 mA	Enter 20 mA level point, measured from reference point in selected level units.
	⑪	Lvl Ofst xxx.xx	**Enter** the offset value	When entering configuration values from the end of the probe is cumbersome, an offset can be introduced to determine a new reference point. This reference point can be either below the probe (positive offset) or at the probe (negative offset). See page 5 “Terminology”.
	⑫	Damping xx.x s	**Enter** the damping factor.	A Damping factor (1-25 seconds) may be added to smooth a noisy display and/or output due to turbulence. Below 15 s = 0,1 s increments. Above 15 s = 1 s increments.
	⑬	Fault (Select)	**Enter** the value for error.	Select «3.6 mA», «22 mA» or hold last value «HOLD». In case of loop failure, error signal will follow the failing trend; meaning the unit will show 3.6 mA when the reviewed loop current by the device is found too low. The unit will show 22 mA in case the reviewed loop current is found too high.
	⑭	Poll Adr xx	Enter HART ID number.	Select a HART poll address (0-15). Enter 0 for a single transmitter installation.

= **Quick Start up**

	Screen	Action	Comment
Diagnostics	⑮ Trim 4 xxxx	Fine tune the 4 mA point.	Attach a mA meter to the output. If the output does not equal 4.0 mA, adjust the value on the display to equal 4.00 mA.
	⑯ Trim 20 xxxx	Fine tune the 20 mA point.	Attach a mA meter to the output. If the output does not equal 20.0 mA, adjust the value on the display to equal 20.00 mA.
	⑰ Loop Tst xx.x mA	Enter a mA output value.	Set mA Output to any given value to perform loop test.
	⑱ Deadband xx.x	None, do not adjust.	Factory setting.
	⑲ Snsr Mnt (select)	Select the type of mounting.	«MLI Top» External mount Jupiter – Top mounted Jupiter «MLI Bot» External mount Jupiter – Bottom mounted Jupiter «Dir Near» Direct mount Jupiter – NPT, BSP and Flanged ≤ 600 lbs / PN160 «Dir Ext» Direct mount Jupiter – Flanged ≥ 900 lbs / PN250
	⑳ Trim Lvl xx.xx	Enter value to adjust level reading.	Allows to compensate for a fixed level deviation.
	㉑ Trim Ifc xx.xx	Enter value to adjust interface reading.	Allows to compensate for a fixed level deviation.
	㉒ F1 Cnts xxxx	Diagnostic display float 1 (see terminology page 5).	Shows time of flight from the start pulse to reflected signal from float 1.
	㉓ F2 Cnts xxxx	Diagnostic display float 2 (see terminology page 5).	Shows time of flight from the start pulse to reflected signal from float 2.
	㉔ New Pass xxx	Enter new password.	Use arrows to select desired value. Values between 0 and 255.
	㉕ Language (select)	Select language	Select «English» or «Espagnol».
	㉖ JupiterHT Ver 3.0A	None, do not adjust.	Factory setting. «Ver» refers to software version.
	㉗ DispFact (select)	Advanced diagnostics.	See page 14.

MENU: STEP BY STEP PROCEDURE – Jupiter 200: Level and Interface – Loop signal (PV) is top liquid level

		Screen	Action	Comment
Run mode	1	*Status* *Level* *%Output* *Loop*	Transmitter Display	Transmitter default values cycle every 8 seconds. Status «Status», Volume «Volume», % Output «% Output», and Loop «Loop».
	2	Level xxx.xx	Transmitter Display	Transmitter displays top liquid value in selected engineering units.
	3	%Output xx.xx	Transmitter Display	Transmitter displays % Output measurement derived from 20 mA span.
	4	Loop xx.xx mA	Transmitter Display	Transmitter displays Loop measurement (mA).
	5	IfcLevel xxx.xxx	Transmitter Display	Unit displays locally interface level.
Configuration	6	MeasType (select)	**Select** the type of measurement	Select Level and Interface «Lvl&Ifc».
	7	Units (select)	**Select** units for level	cm «cm» or inches «inches».
	8	Probe Ln xxx.xx	**Enter** the exact length of probe	Enter as per the 3 last digits of the probe partnumber on the name-plate: From 15 cm up to 999 cm e.g. 242-D111-AAM-280, enter «280» cm probe length.
	9	Set 4mA xxx.xx	**Enter** the PV for 4 mA	Enter 4 mA level point, measured from reference point in selected level units.
	10	Set 20mA xxx.xx	**Enter** the PV for 20 mA	Enter 20 mA level point, measured from reference point in selected level units.
	11	Lvl Ofst xxx.xx	**Enter** the offset value	When entering configuration values from the end of the probe is cumbersome, an offset can be introduced to determine a new reference point. This reference point can be either below the probe (positive offset) or at the probe (negative offset). See page 5 “Terminology”.
	12	Damping xx.x s	**Enter** the damping factor.	A Damping factor (1-25 seconds) may be added to smooth a noisy display and/or output due to turbulence. Below 15 s = 0,1 s increments. Above 15 s = 1 s increments.
	13	Fault (Select)	**Enter** the value for error.	Select «3.6 mA», «22 mA» or hold last value «HOLD». In case of loop failure, error signal will follow the failing trend; meaning the unit will show 3.6 mA when the reviewed loop current by the device is found too low. The unit will show 22 mA in case the reviewed loop current is found too high.
	14	Poll Adr xx	Enter HART ID number.	Select a HART poll address (0-15). Enter 0 for a single transmitter installation.

= **Quick Start up**

Diagnostics

	Screen	Action	Comment
⑮	Trim 4 xxxx	Fine tune the 4 mA point.	Attach a mA meter to the output. If the output does not equal 4.0 mA, adjust the value on the display to equal 4.00 mA.
⑯	Trim 20 xxxx	Fine tune the 20 mA point.	Attach a mA meter to the output. If the output does not equal 20.0 mA, adjust the value on the display to equal 20.00 mA.
⑰	Loop Tst xx.x mA	Enter a mA output value.	Set mA Output to any given value to perform loop test.
⑱	Deadband xx.x	None, do not adjust.	Factory setting.
⑲	Snsr Mnt (select)	Select the type of mounting.	«MLI Top» External mount Jupiter – Top mounted Jupiter «MLI Bot» External mount Jupiter – Bottom mounted Jupiter «Dir Near» Direct mount Jupiter – NPT, BSP and Flanged ≤ 600 lbs / PN160 «Dir Ext» Direct mount Jupiter – Flanged ≥ 900 lbs / PN250
⑳	Trim Lvl xx.xx	Enter value to adjust level reading.	Allows to compensate for a fixed level deviation.
㉑	Trim Ifc xx.xx	Enter value to adjust interface reading.	Allows to compensate for a fixed level deviation.
㉒	F1 Cnts xxxx	Diagnostic display float 1 (see terminology).	Shows time of flight from the start pulse to reflected signal from float 1.
㉓	F2 Cnts xxxx	Diagnostic display float 2 (see terminology).	Shows time of flight from the start pulse to reflected signal from float 2.
㉔	New Pass xxx	Enter new password.	Use arrows to select desired value. Values between 0 and 255.
㉕	Language (select)	Select language	Select «English» or «Espagnol».
㉖	JupiterHT Ver 3.0A	None, do not adjust.	Factory setting. «Ver» refers to software version.
㉗	DispFact (select)	Advanced diagnostics.	See page 14.

MENU: STEP BY STEP PROCEDURE – Jupiter 200: ADVANCED CONFIGURATION

Hidden diagnostic screens. Do not acces without assistance or having followed advanced training.

Diagnostics

	Screen	Action	Comment
1	DispFact Select	Review factory parameters	Select «YES» to reveal Factory parameters; «NO» to hide.
2	History (current status)	Review Diagnostic messages.	A cumulative review of all diagnostic messages. Press the enter button twice to clear.
3	Run time Xx h	Display mode.	Shows time in hours that unit is in operation since last power on.
4	History Reset	Diagnostic display.	Select «YES» to clear «History».
5	Conv Fct xxxx	None, do not adjust.	Factory setting.
6	Scl Ofst xxx	None, do not adjust.	Factory setting.
7	F1Tresh	None, do not adjust.	Factory setting.
8	F1 Polar	None, do not adjust.	Factory setting.
9	F2Tresh	None, do not adjust.	Factory setting.
10	F2 Polar	None, do not adjust.	Factory setting.
11	Senstvty xxx	Change cryptic value	Enter a value upward or downward to sense the liquid surface. Allows to fine gain adjustment.
12	Drv Ampl xxx	None, do not adjust.	Factory setting.
13	Min Sep	None, do not adjust.	Factory setting.
14	ElecTemp xxx C	None, do not adjust.	Shows internal housing temperature.
15	Max Temp xxx C	None, do not adjust.	Diagnostic display, shows maximum internal housing temperature recorded.
16	Min Temp xxx C	None, do not adjust.	Diagnostic display, shows minimum internal housing temperature recorded.

For more details about the use of PACT*ware* and FDT, refer to instruction manual 59-601

WHAT IS FDT, PACTware AND DTM

- FDT (Field Device Tool) is a new interface code that describes the standardization between frame programs (e.g., PACT*ware*) and DTMs (Device Type Manager).
- PACT*ware* (Process Automation Configuration Tool) is a frame program. It is a device-independent software program that communicates with all approved DTMs.
- DTM (Device Type Manager) is not a stand-alone program but a device-specific software driver designed to operate within a frame program such as PACTware. It includes all special information needed to communicate with a specific device (e.g. Jupiter 200). There are two basic categories of DTMs—Communication (HART, Fieldbus®, Profibus®, etc.) and Field Device (e.g. Jupiter 200).

MINIMUM SYSTEM REQUIREMENTS

Following are general requirements for proper operation of this program:

Pentium® II 500 MHz processor.

128 MB RAM.

120 MB free hard disk space.

Windows® XP/2000 (Service Pack 1) / NT 4.0 (Service Pack 6).

Graphic Resolution 1024x768 (16-bit color).

Internet Explorer 5.0.

RS232 serial interface.

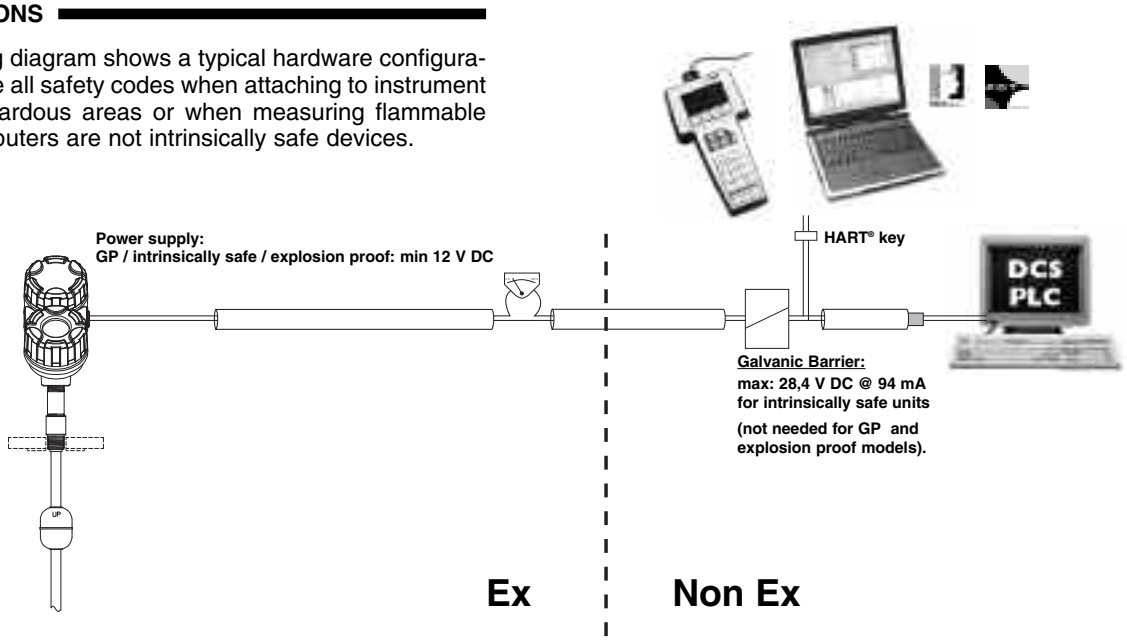
RS232-HART or USB-HART serial interface for point-to-point connection or RS232-RS485 converter for connection to Hart Multiplexer.

HART communication DTM.

Transmitter with current HART revision.

CONNECTIONS

The following diagram shows a typical hardware configuration. Observe all safety codes when attaching to instrument loops in hazardous areas or when measuring flammable media. Computers are not intrinsically safe devices.



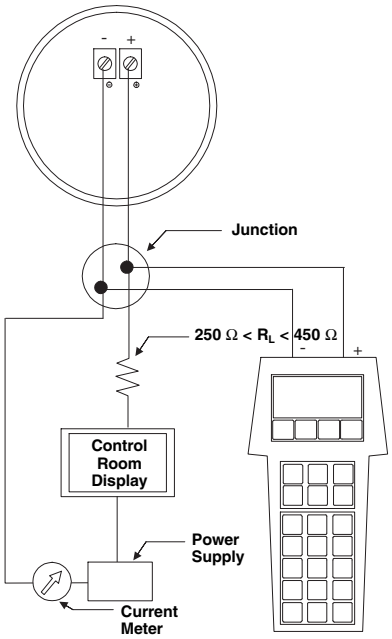
MOST COMMONLY USED SCREENS

- Online parameterization: allows the user to configure the unit online.
- Offline parameterization: allows the user to configure the unit offline.
- Tank view: displays a common operating window graphically showing % output of level.
- Waveform: shows the actual echocurve. The waveform is an extremely useful tool for advanced configuration and troubleshooting.
- Process trend: all key data (Level, % Output, Loop) can be trended and saved, scales can be adapted.
- Device/diagnosis: the diagnosis: the diagnosis screen allows examination of all faults, warnings and international messages.

TROUBLESHOOTING

This program offers a wealth of information critical to effective troubleshooting. If a problem should arise and factory assistance is necessary for analysis, be prepared to save and email the following files:

- **ONLINE PARAMETERS:** the complete list of configuration data.
- **PROCESS TREND** information that includes the time of upset/error condition.
- **WAVEFORM** showing upset/error condition (when possible).
- **ERROR MONITOR** (VIEW/ERROR MONITOR) including upset/error condition.



CONNECTIONS

Connection of your Hart communicator:
- at power terminals (+) and (-) in wiring compartment
- at first junction box between unit and control room.

IMPORTANT: The digital HART® communication is superimposed on the 4-20 mA loop and requires a min. load resistance of 250 Ω and a max load resistance of 450 Ω.

CHECK HART®

Before starting the HART® configuration procedure – check if your HART® communicator is equipped with the proper Jupiter Device Descriptors (DD's).

I/O	start up the communicator
Select NO:	go offline
Select 4:	utility
Select 5:	simulation
Check manufacturer:	Magnetrol

HCF Release Date	HART Version	Compatible with software
July 2003	Dev V2 DD V1	Version 2.0A ... 2.0B
July 2006	Dev V3 DD V2	Version 3.0A and later

When the proper software version is not found, consult your local HART® Service Center to load the correct Jupiter DD's.

For easy PACT*ware* set up, consult instruction manual 59-600

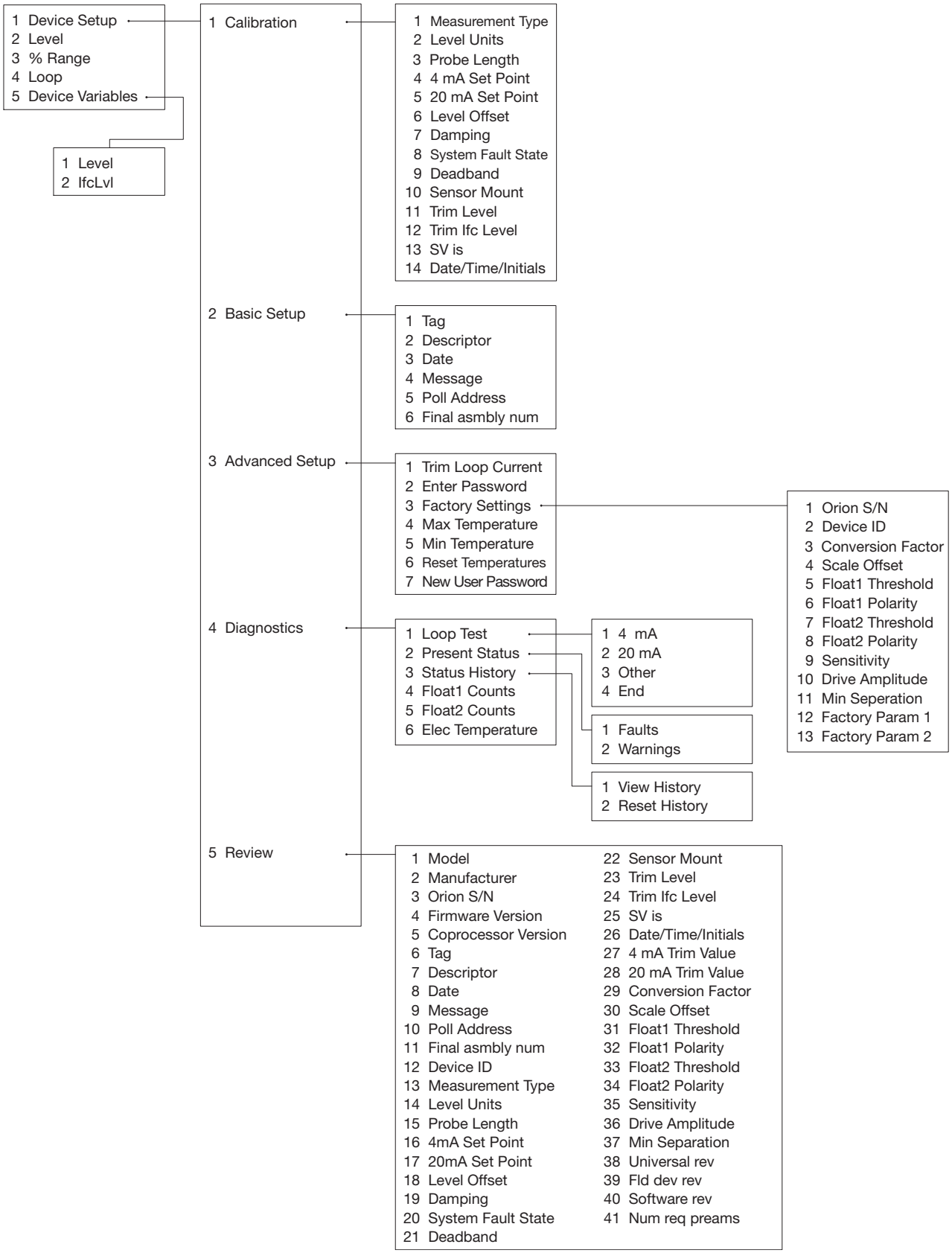
HART MENU

I/O Start up the device
1 Enter Device Set Up «DEVICE SET UP»
Press one of the following alphanumeric keys (if no key is sensed after 8 s, the unit will automatically jump to RUN mode and alternatively show Level/% Output and Loop signal

1 for entering Calibration «CALIBRATION» (see page 11 for additional information)
2 for entering Basic Set Up «BASIC SET UP» – general HART
3 for Advanced Set Up «ADVANCED SET UP» (see page 11 for additional information)
4 for entering Diagnostics «DIAGNOSTICS» (see page 11 for additional information)
5 for entering Review «REVIEW» to review all settings.

HART ERROR MESSAGES

LCD	Class	HART Status	SIL1	SIL2	Description
TrimReqd	Warning	Yes	Yes	Yes	Loop DAC trim values are defaults, loop output inaccurate
Cal Reqd	Warning	Yes	Yes	Yes	Default calibration parameters in use, level reading inaccurate
Lo Temp	Warning	Yes	Yes	Yes	Present temperature in electronics compartment is below -40 °C
Hi Temp	Warning	Yes	Yes	Yes	Present temperature in electronics compartment is above +80 °C
Float 2 Fail	Fault	Yes	Yes	Yes	No level signal detected from Float 2
Float 1 Fail	Fault	Yes	Yes	Yes	No level signal detected from Float 1
No Signal	Fault	Yes	Yes	Yes	No level signal detected from any float
LoopFail	Fault	Yes	Yes	Yes	Loop current differs from the commanded value
Snsr Brd Fail	Fault	Yes	Yes	Yes	Invalid reading from the Analog Board
DfltParm	Fault	Yes	Yes	Yes	Non-volatile parameters have been defaulted


1 Device Setup
2 Level
3 % Range
4 Loop
5 Device Variables
1 Level
2 IfcLvl
1 Calibration
1 Measurement Type
2 Level Units
3 Probe Length
4 4 mA Set Point
5 20 mA Set Point
6 Level Offset
7 Damping
8 System Fault State
9 Deadband
10 Sensor Mount
11 Trim Level
12 Trim Ifc Level
13 SV is
14 Date/Time/Initials
2 Basic Setup
1 Tag
2 Descriptor
3 Date
4 Message
5 Poll Address
6 Final asmbly num
3 Advanced Setup
1 Trim Loop Current
2 Enter Password
3 Factory Settings
4 Max Temperature
5 Min Temperature
6 Reset Temperatures
7 New User Password
1 Orion S/N
2 Device ID
3 Conversion Factor
4 Scale Offset
5 Float1 Threshold
6 Float1 Polarity
7 Float2 Threshold
8 Float2 Polarity
9 Sensitivity
10 Drive Amplitude
11 Min Seperation
12 Factory Param 1
13 Factory Param 2
4 Diagnostics
1 Loop Test
2 Present Status
3 Status History
4 Float1 Counts
5 Float2 Counts
6 Elec Temperature
1 4 mA
2 20 mA
3 Other
4 End
1 Faults
2 Warnings
1 View History
2 Reset History
5 Review
1 Model
2 Manufacturer
3 Orion S/N
4 Firmware Version
5 Coprocessor Version
6 Tag
7 Descriptor
8 Date
9 Message
10 Poll Address
11 Final asmbly num
12 Device ID
13 Measurement Type
14 Level Units
15 Probe Length
16 4mA Set Point
17 20mA Set Point
18 Level Offset
19 Damping
20 System Fault State
21 Deadband
22 Sensor Mount
23 Trim Level
24 Trim Ifc Level
25 SV is
26 Date/Time/Initials
27 4 mA Trim Value
28 20 mA Trim Value
29 Conversion Factor
30 Scale Offset
31 Float1 Threshold
32 Float1 Polarity
33 Float2 Threshold
34 Float2 Polarity
35 Sensitivity
36 Drive Amplitude
37 Min Separation
38 Universal rev
39 Fld dev rev
40 Software rev
41 Num req preams

TROUBLESHOOTING

Problem		Solution
Transmitter does not track level	(External Mount)	Remove transmitter from piping column and test with re-alignment magnet. Run magnet from bottom to top of probe. Check zero and span calibration. If no change in output, consult the factory.
	(Direct Insertion)	Float stuck, Probe bent (Chamber)
Float inside the level gauge is moving slow or not at all.		Ensure that the magnetic level indicator is plumb. The process fluid being measured may be too viscous and heat tracing may be required to make the material more fluid. The specific gravity of the process fluid and float weight may need to be reverified. The liquid being measured may contain magnetic particles collecting on the magnetic section of the float causing drag. If this happens magnetic trap assemblies can be purchased from the factory. Visual inspection of the float may be required to see if the float has collapsed.
LEVEL, % OUTPUT, and LOOP values are all inaccurate.		Basic configuration data is questionable. Reconfigure probe length and offset. Ensure the level is accurate. Reconfigure loop values.
LEVEL, % OUTPUT, and LOOP values fluctuate		Turbulence, increase damping factor until readings stabilize.
Level reading on display is correct, but loop value is stuck at 4 mA		Set poll address to zero

DISPLAY MALFUNCTION

Ambient temp	Symptom
< -20 °C (-5 °F)	Display may temporarily white out
> +70 °C (+160 °F)	Display may temporarily black out
-20 °C up to +70 °C (-5 °F up to +160 °F)	Display will recover without damage

ERROR MESSAGES

Display Message	Action	Comment
OK	None	Normal operating mode
Initial	None	Program is Initializing, level reading held at 4 mA set point. This is a transient condition.
NoSignal	No level signal being detected.	Make sure float is not damaged and within measuring range.
Hi Temp	Present temperature in electronics compartment is above +80° C	1) Transmitter may need to be moved to ensure ambient temperature is within specification 2) Change to remote mount transmitter
Lo Temp	Present temperature in electronics compartment is below -40° C.	1) Transmitter may need to be moved to ensure ambient temperature is within specification 2) Change to remote mount transmitter
TrimReqd	Factory set Loop values are defaults, loop output may be inaccurate	Consult factory
Cal Reqd	Factory set default calibration parameters are in use, level reading may be inaccurate	Consult factory
LoopFail	Loop current differs from expected value	Consult factory **Note:** In case of loop failure, error signal will follow the failing trend; meaning the unit will show 3.6 mA when the reviewed loop current by the device is found too low. The unit will show 22 mA in case the reviewed loop current is found too high.
DfltParm	Internal non-volatile parameters have been defaulted	Consult factory
Float 2 Fail	No level signal detected from float 2	Make sure 2 floats are being used, are not damaged, and within measuring range
Float 1 Fail	No level signal detected from float 1	Make sure float is not damaged, and within measuring range
Snsr Brd	Measurement board not responding	Consult factory

PACTware™ PC Program

The JUPITER® 200 series offer the ability to do Trending and Waveform analysis using a PACTware DTM. This is a powerful troubleshooting tool that can aid in the resolution of some of the Error Messages shown above.

Refer to Bulletins 59-101 and 59-601 for more information.

Free of charge order code: **090-0059-200** (included in each order).

SAFETY INTEGRITY LEVELS 1 & 2

Jupiter® is the only magnetostrictive transmitter to achieve SIL 2 classification as 1oo1 device per IEC 61508. The below table offers the possibility to compare on a one-to-one basis, the SIL performance of Jupiter with other level transmitters.

1oo1: One-out-of-one device means the suggested SIL class by the manufacturer is achieved by a single transmitter. The use of 2 transmitters to achieve a higher SIL classification is often stated as 1oo2 (one out of two) devices.

SFF: Safe Failure Fraction is the ratio between detected (safe and dangerous) and undetected (safe) instrument failures versus total failures by the instrument. The % of this ratio is preferably as high as possible.

PFDavg: Average probability of failure on demand. This value is preferably as low as possible.

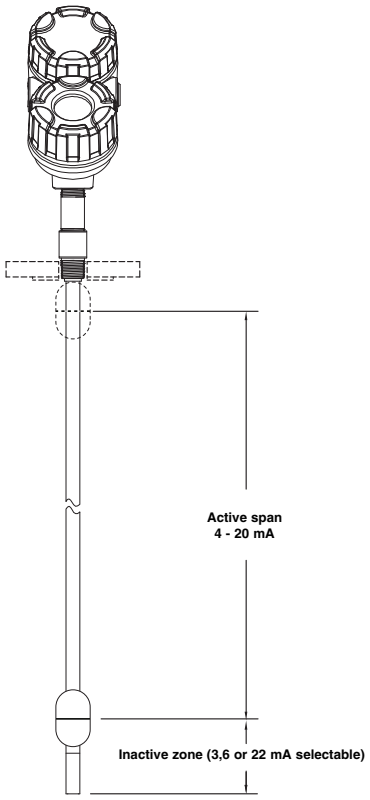
For more complete information, ask for the Jupiter FMEDA report by Exida.

	Standard electronics		**SIL enhanced electronics**	
SIL	1 as 1oo1		2 as 1oo1	
Intrument Type	B		B	
SFF	83,7 %		90,7 %	
PFDavg	9,60E-04		5,45E-04	
	FITS	**Annual**	**FITS**	**Annual**
Fail Dangerous Undetected	218	1,91E-03	123	1,08E-03
Fail Dangerous Detected	698	6,11E-03	793	6,95E-03
Safe	421	3,69E-03	413	3,62E-03

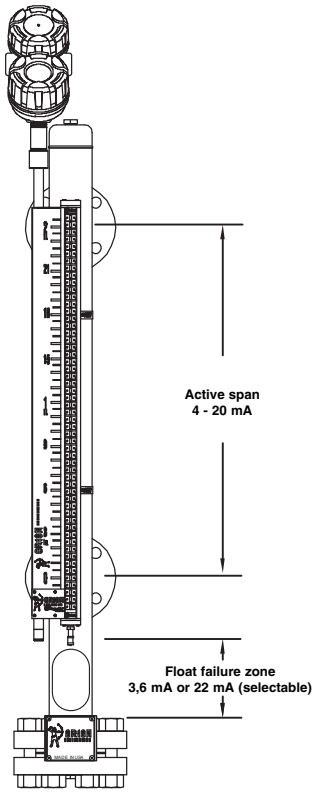
Ask for our SIL manual 41-299

FLOAT FAILURE IDENTIFICATION

The Jupiter® 200 with SIL enhanced electronics is either using a probe with inactive zone or an extended MLI cage to identify a sinking or collapsed float as a float failure. Jupiter® 200 with SIL enhanced electronics are equipped with one float for measuring either the top level or the interface level.

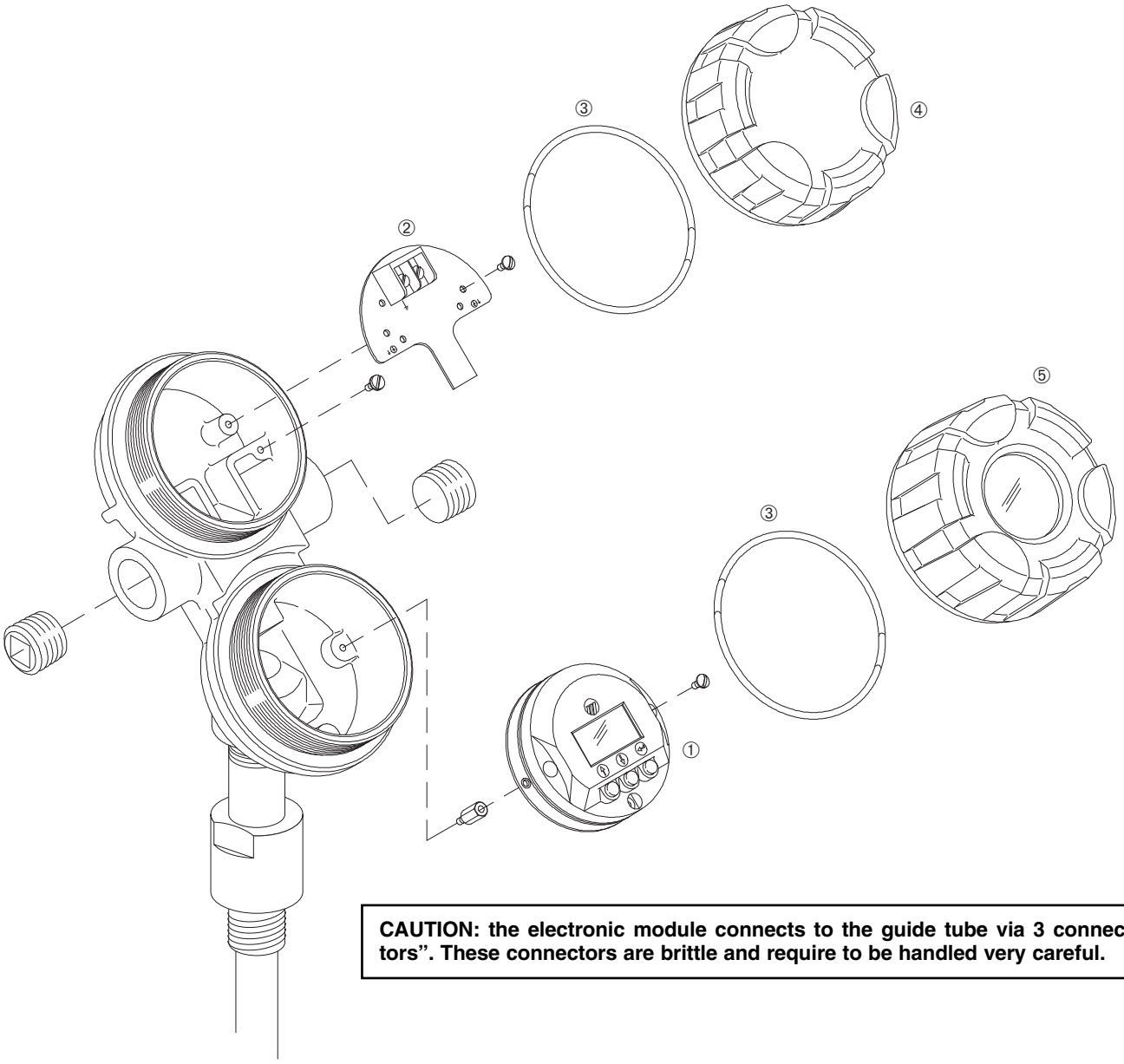


Direct insertion

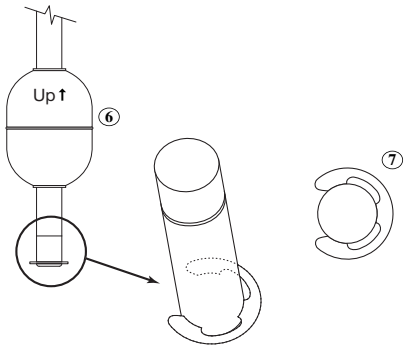


External mount

REPLACEMENT PARTS



CAUTION: the electronic module connects to the guide tube via 3 connectors". These connectors are brittle and require to be handled very careful.



No.	*Description*	*Part Number*
1	Electronic module Display and HART® Foundation Fieldbus	 031-2839-001 031-2840-001
2	Terminal board General Purpose (GP, Exi and Exd)	 030-9151-001
3	"O"-Ring (Viton®)	012-2201-237
4	Housing cover without glass ①	004-9193-002
5	Housing cover with glass (GP/IS)① Housing cover with glass (XP)①	036-4410-001 036-4410-003
6	Float	Consult factory
7	C-clips	010-5140-001

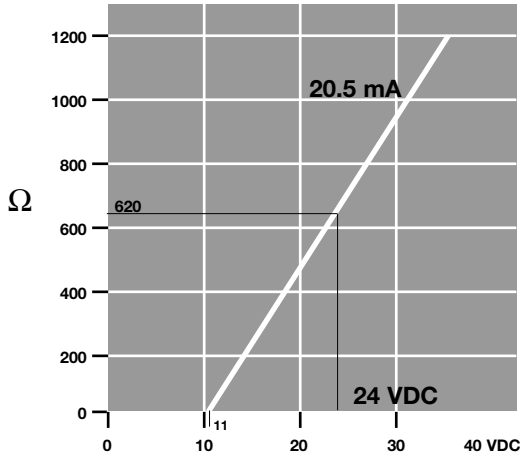
① For stainless steel housing covers – consult factory.

TRANSMITTER SPECIFICATIONS

FUNCTIONAL/PHYSICAL

Description		*Specification*
Power (at terminals)		General Purpose / ATEX Intrinsically Safe: 12 to 28,4 V DC ATEX Explosion Proof: 12 to 32 V DC
Power consumption		0,7 W
Signal Output		4-20 mA with HART®, 3,8 mA to 20,5 mA useable (meets NAMUR NE 43)
Probe Length		15 to 570 cm (6 to 224"). Consult factory for longer lengths
Resolution		Analog: 0,01 mA Display: 0,1 units
Loop Resistance (see table below)		620 Ω @ 20,5 mA - 24 V DC
Damping		Adjustable 0-25 s
Diagnostic Alarm		Selectable 3,6 mA, 22 mA or hold
User Interface		HART® communicator, AMS® or PACT*ware*® and/or 3-button keypad
Display		2-line x 8-character LCD. Displays level (cm/inches), mA and % of level.
Menu Language		English and Spanish
Housing Material		IP 66/Aluminium A356T6 (< 0.20 % copper) or stainless steel
Approvals		ATEX II 1 G EEx ia IIC T4, intrinsically safe ATEX II 1 / 2 G EEx d IIC T6, explosion proof FM and CSA, Non incendive, intrinsically safe (FISCO) and explosion proof LRS – Lloyds Register of Shipping (marine applications) – pending GOST-K/GGTN-K – RosTech/FSTS – Russian Authorisation Standards – pending
SIL (Safety Integrity Level)	Standard electronics	Functional safety to SIL 1 / SIL 2 in accordance to 61508 – SFF of 83,7 % – full FMEDA reports and declaration sheets available at request
	Enhanced electronics	Functional safety to SIL 2 / SIL 3 in accordance to 61508 – SFF of 90,7 % – full FMEDA reports and declaration sheets available at request
Electrical Data		Ui = 28,4 V, Ii = 94 mA, Pi = 0,67 W Ui = 17,5 V, Ii = 380 mA, Pi = 5,32 W (Foundation Fieldbus)
Equivalent Data		Ci = 2,2 nF, Li = 3 µH Ci = 0,71 nF, Li = 3 µH (Foundation Fieldbus)
Environmental protection		EN 60654-1
Drop protection		EN 50178
Surging protection		EN 61326 (1000V)
Net and Gross Weight	Cast aluminium	2,70 kg net; 3,20 kg gross – amplifier only
	Stainless steel	5,70 kg net; 6,20 kg gross – amplifier only

POWER CONSUMPTION



TRANSMITTER SPECIFICATIONS

PERFORMANCE

Description	*Specification*
Accuracy	± 0,4 mm (0.015")
Repeatability	± 0,005 % of full span or 0,13 mm (0.005") – whichever is greater
Linearity	± 0,020 % of full span or 0,79 mm (0.031") – whichever is greater
Max fill / drain rate	9 m/min (30 ft/min)
Response Time	< 0,1 second
Warm-up Time	< 5 seconds
Ambient Temp.	-20 °C to +70 °C (-5 °F to +160 °F)
Humidity	0-99 %, non-condensing
Electromagnetic Compatibility	Meets CE requirements (EN-61000-6-4, EN 61000-6-2)

PROBE SPECIFICATIONS

Description		*Specification*
Materials	Probe	316/316L (1.4401/1.4404) standard or electropolished finish Hastelloy C® (2.4819) or Monel® (2.4360)
	Float	316 (1.4401), 316L (1.4404), Titanium or Hastelloy C® (2.4819)
	Process seal	None, welded construction
Probe diameter		16 mm (0.63")
Float diameter (for direct insertion models only)		Min 47 mm (1.85") – max 65 mm (2.55") see partnumber on page 7
Probe length		Min 15 cm (6") – max 570 cm (224") selectable per 1 cm increments
Dead band	Upper	Direct insertion model: 50 mm (2"). External mount model: depending configuration.
	Bottom	50 mm (2") – for units with standard electronics and single float 152 mm (6") – for units with standard electronics and dual floats
Inactive zone - bottom		127 mm (5") – for units with SIL enhanced electronics
Process temperature	Direct insertion	-40 °C to +95 °C (-40 °F to +200 °F) – standard probe -40 °C to +260 °C (-40 °F to +500 °F) – high temperature probe
	External mount	-40 °C to +120 °C (-40 °F to +250 °F) – standard -196 °C to +455 °C (-320 °F to +850 °F) – with factory insulated MLI
Process Pressure①	316 and 316L	Max 22,8 bar @ +40 °C (330 psig @ 100 °F)
	Titanium	Max 26,2 bar @ +40 °C (380 psig @ 100 °F)
	Hastelloy C	Max 18,6 bar @ +40 °C (270 psig @ 100 °F)
Vacuum service		Full vacuum

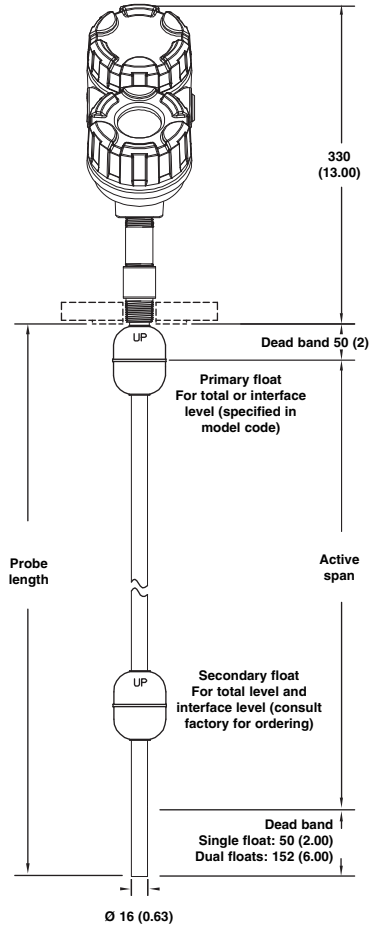
① Consult factory for higher pressure (custom float).

MODEL IDENTIFICATION

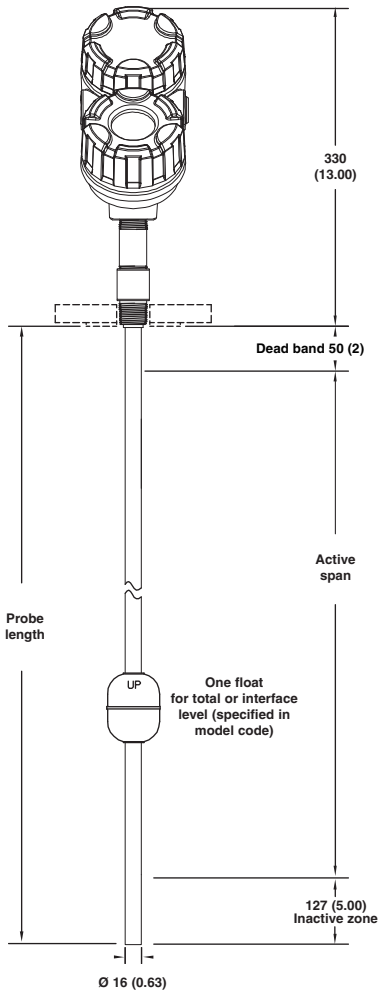
A complete measuring system consists of:

1. Jupiter 200: transmitter and probe (MLI or cages as shown in this bulletin are not included).
2. OPTION: secondary float for interface applications (specify S.G. for lower liquid).
3. OPTION: ATLAS®. Magnetic level indicator for use with Jupiter 200, external mount model. Consult bulletin 46-138.
4. Free of charge: Magnetrol master C.D. with Jupiter 200 DTM (PACT*ware*®). Order code: **090-BE59-200** (included in each order).

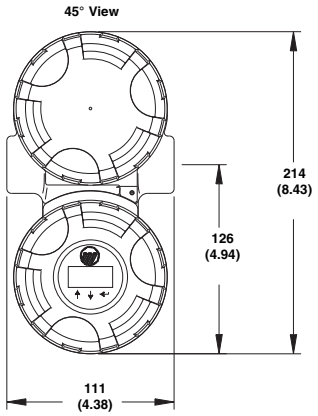
DIMENSIONS in mm (inches)



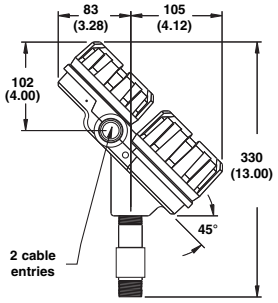
Standard electronics



SIL enhanced electronics

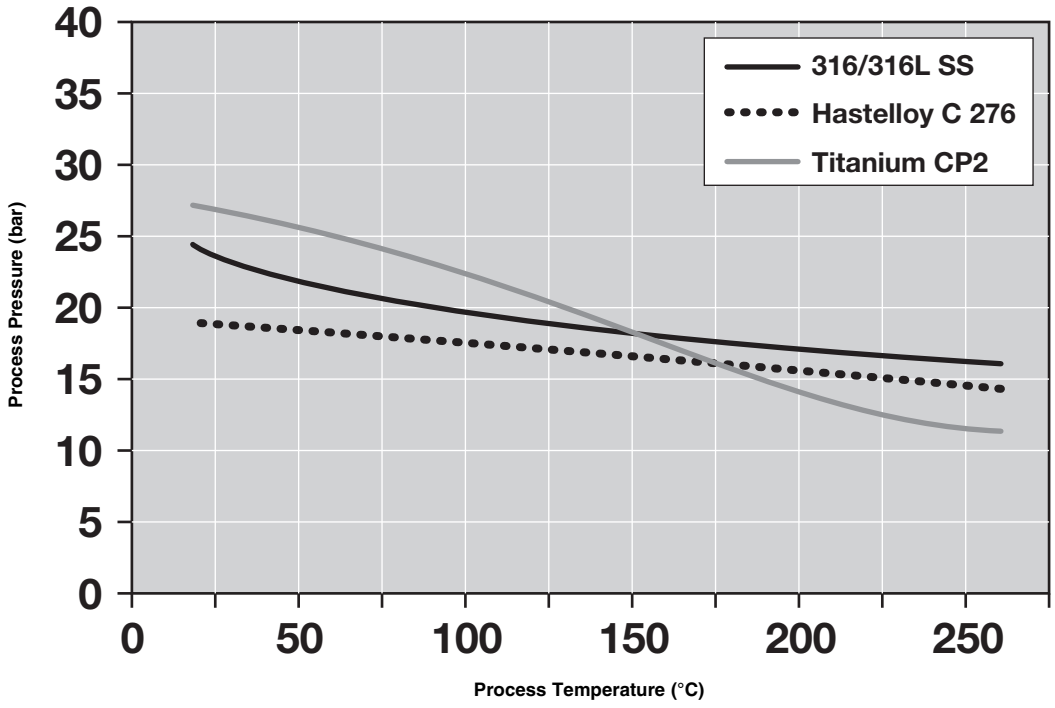


Jupiter Housing,
(45° View)



Jupiter Housing

PRESSURE/TEMPERATURE



MODEL IDENTIFICATION

BASIC MODEL NUMBER

1 Code for direct insertion Jupiter® 200

2 4	Magnetostrictive transmitter with standard HART® electronics	for level or interface
2 6	Magnetostrictive transmitter with SIL enhanced HART® electronics	for level or interface
2 7	Magnetostrictive transmitter with standard HART® electronics	for level and interface①

① Level and interface requires 2 floats, order second float separately (see FLOAT selection below)

APPROVALS AND HOUSING

3/4" NPT	M20 x 1,5	Cable entry (2 entries - one plugged)	
1	2	General purpose (& I.S. - XP FM/CSA)	Cast aluminium housing
3	4	General purpose (& I.S. - XP FM/CSA)	Stainless steel housing
A	B	ATEX II 1/2G EEx d IIC T6, explosion proof	Cast aluminium housing
C	D	ATEX II 1/2G EEx d IIC T6, explosion proof	Stainless steel housing
E	F	ATEX II 1G EEx ia IIC T4, intrinsically safe	Cast aluminium housing
G	H	ATEX II 1G EEx ia IIC T4, intrinsically safe	Stainless steel housing

MATERIALS OF CONSTRUCTION

D 1	Standard temperature 316/316L (1.4401/1.4404)	max +95 °C (+200 °F)
D 2	Hastelloy C (2.4819)	max +95 °C (+200 °F)
D 3	Monel (2.4360)	max +95 °C (+200 °F)
D 5	Electropolished 316/316L (1.4401/1.4404)	max +95 °C (+200 °F)
D 7	High temperature 316/316L (1.4401/1.4404)	max +260 °C (+500 °F)

MOUNTING CONNECTION - SIZE/TYPE (consult factory for other process connections)

Threaded

1 1	3/4" NPT thread
2 2	1" BSP (G1) thread

ANSI flanges

5 3	3"	150 lbs. ANSI RF
5 4	3"	300 lbs. ANSI RF
6 3	4"	150 lbs. ANSI RF
6 4	4"	300 lbs. ANSI RF

EN/DIN flanges

E A	DN 80, PN 16	EN 1092-1 Type A
E B	DN 80, PN 25/40	EN 1092-1 Type A
F A	DN 100, PN 16	EN 1092-1 Type A
F B	DN 100, PN 25/40	EN 1092-1 Type A

FLOAT (for models with 2 floats, consult factory for the lower float)

Code	Min S.G.	Max operating pressure in bar (psig) 40 °C (100 °F)	95 °C (200 °F)	175 °C (350 °F)	260 °C (500 °F)	float material	Ø x length in mm (inches)
For level only							
AAM	0,84	22,8 (330)	21,0 (305)	18,6 (270)	16,6 (240)	316/316L	50 x 70 (2 x 2.75)
CAM		18,6 (270)	17,6 (255)	16,2 (235)	14,8 (215)	Hastelloy C	47 x 76 (1.85 x 3)
ABM	0,70	22,8 (330)	21,0 (305)	18,6 (270)	16,6 (240)	316/316L	58,5 x 76 (2.30 x 3)
BAM		26,2 (380)	23,8 (345)	16,2 (235)	11,4 (165)	Titanium	50 x 70 (2 x 2.75)
CBM		18,6 (270)	17,6 (255)	16,2 (235)	14,8 (215)	Hastelloy C	58,5 x 76 (2.30 x 3)
ACM	0,64	22,8 (330)	21,0 (305)	18,6 (270)	16,6 (240)	316/316L	65 x 76 (2.55 x 3)
BBM	0,52	26,2 (380)	23,8 (345)	16,2 (235)	11,4 (165)	Titanium	58,5 x 76 (2.30 x 3)
For interface only							
MAM	0,89 / 1,00①	22,8 (330)	21,0 (305)	18,6 (270)	16,6 (240)	316/316L	consult factory
NAM		26,2 (380)	23,8 (345)	16,2 (235)	11,4 (165)	Titanium	consult factory
PAM		18,6 (270)	17,6 (255)	16,2 (235)	14,8 (215)	Hastelloy C	consult factory
MBM	1,00 / 1,12①	22,8 (330)	21,0 (305)	18,6 (270)	16,6 (240)	316/316L	consult factory
NBM		26,2 (380)	23,8 (345)	16,2 (235)	11,4 (165)	Titanium	consult factory
PBM		18,6 (270)	17,6 (255)	16,2 (235)	14,8 (215)	Hastelloy C	consult factory
Custom float							
00M	consult factory						

① Density in which the float sinks / Density in which the float floats.

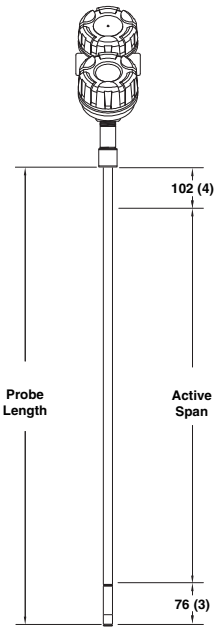
PROBE LENGTH (specify in cm increments)

0 1 5	min 15 cm (6")
5 7 0	max 570 cm (224")

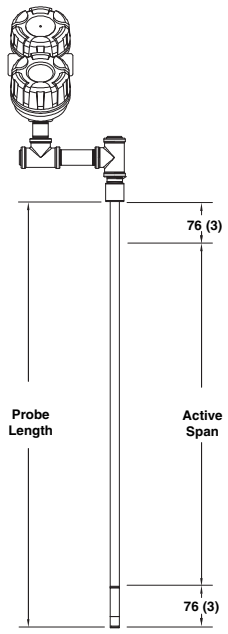
Refer to dimensions on the left page for proper probe length specification).

2 _ _ – D _ _ _ _ _ M – _ _ _ **complete code for JUPITER® 200: direct insertion model**

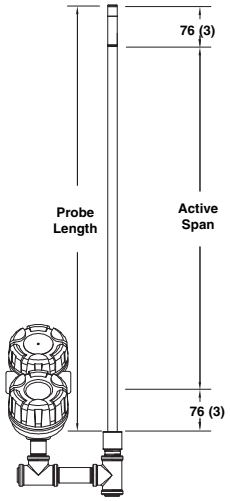
DIMENSIONS in mm (inches)



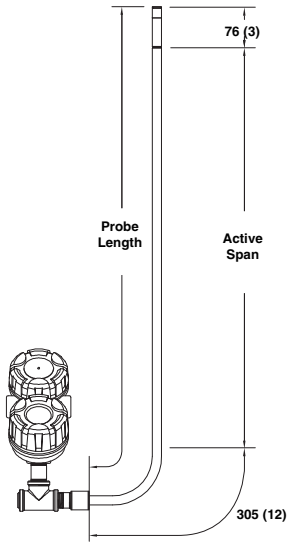
External mount
Top mount



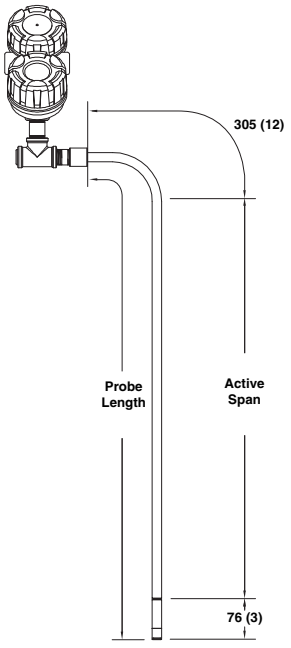
External mount
Top mount with offset



External mount
Bottom mount with offset



External mount
Bottom mount - high temp.



External mount
Top mount - high temp.

MODEL IDENTIFICATION

1 Code for external mount Jupiter® 200

BASIC MODEL NUMBER

2 4	Magnetostrictive transmitter with standard HART® electronics	for level or interface
2 6	Magnetostrictive transmitter with SIL enhanced HART® electronics	for level or interface
2 7	Magnetostrictive transmitter with standard HART® electronics	for level and interface①

① Level and interface requires 2 floats, consult factory for MLI

APPROVALS AND HOUSING (consult factory for FM/CSA approvals)

3/4" NPT	M20 x 1,5	Cable entry (2 entries - one plugged)	
1	2	General purpose (& I.S. - XP FM/CSA)	Cast aluminium housing
3	4	General purpose (& I.S. - XP FM/CSA)	Stainless steel housing
A	B	ATEX II 1/2G EEx d IIC T6, explosion proof	Cast aluminium housing
C	D	ATEX II 1/2G EEx d IIC T6, explosion proof	Stainless steel housing
E	F	ATEX II 1G EEx ia IIC T4, intrinsically safe	Cast aluminium housing
G	H	ATEX II 1G EEx ia IIC T4, intrinsically safe	Stainless steel housing

MATERIALS OF CONSTRUCTION

E 1	Top mount construction - 316/316L (1.4401/1.4404)	max +120 °C (+250 °F)
F 1	Top mount offset construction - 316/316L (1.4401/1.4404)	max +120 °C (+250 °F)
H 1	Bottom mount offset construction - 316/316L (1.4401/1.4404)	max +120 °C (+250 °F)
G 7	Top mount HT offset construction - 316/316L (1.4401/1.4404)	max +455 °C (+850 °F)①
J 7	Bottom mount HT offset construction - 316/316L (1.4401/1.4404)	max +455 °C (+850 °F)①

① With factory insulated MLI.

MOUNTING CONNECTION

0 0 0 0 M	External mount Jupiter

PROBE LENGTH (specify in cm increments)

0 1 5	min 15 cm (6")
5 7 0	max 570 cm (224")

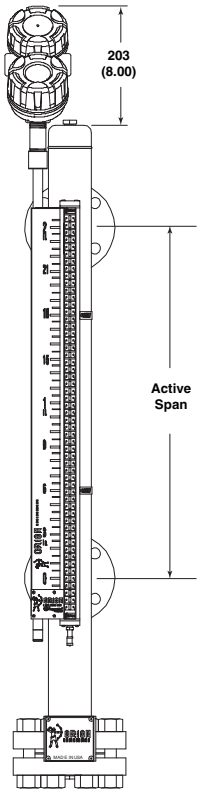
Refer to dimensions on the left page for proper probe length specification.

2					0	0	0	0	M			

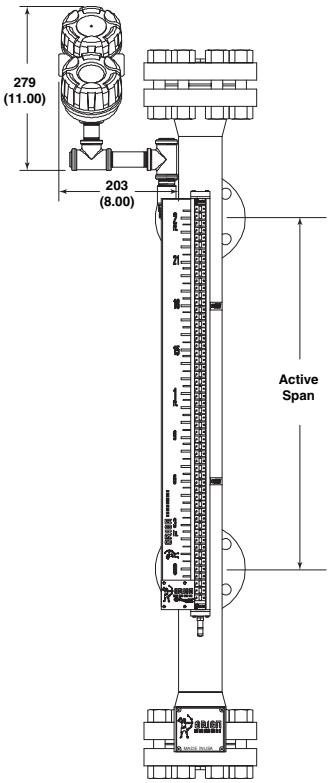
complete code for JUPITER® 200: external mount model

NOTE: Magnetic Level Indicator (MLI) as shown on page 28 is not included in this partnumber. For MLI ordering information, consult sales bulletin 46-138

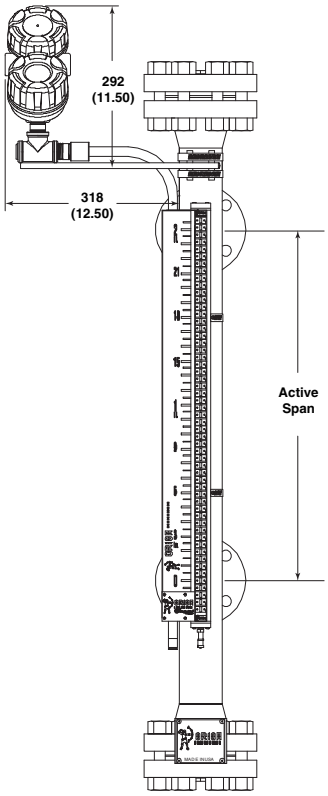
DIMENSIONS in mm (inches)



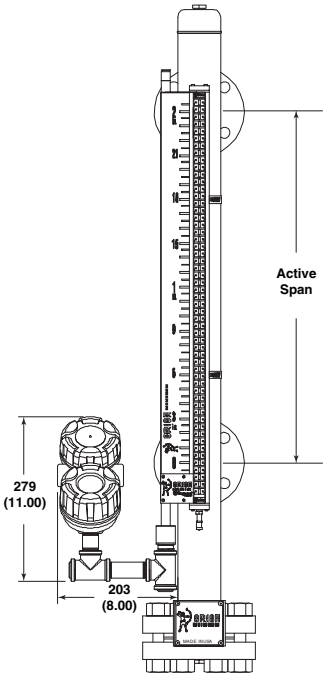
Top mount



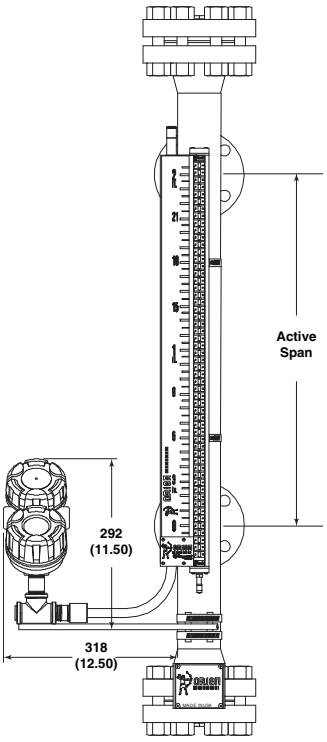
Top mount offset



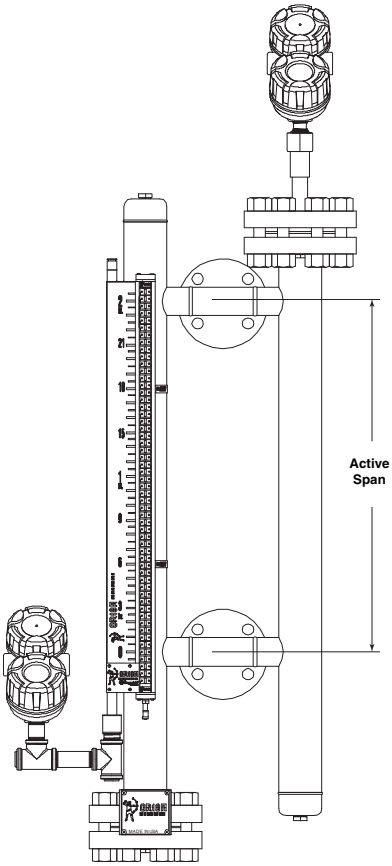
Top mount offset
High Temperature Bend



Bottom mount offset



Bottom mount offset
High Temperature Bend



Bottom mount offset
and secondary transmitter - Gemini

JUPITER 200 Magnetostrictive Transmitter

Configuration Data Sheet

Copy blank page and store calibration data for future reference and troubleshooting.

Item	Screen	Value	Value	TROUBLESHOOTING	
Vessel Name					
Vessel #					
Process Medium & S.G.					
Tag #					
Serial #					
Probe Serial #				Working Value	Non-Working Value
Level	«Level»				
Interface (optional)	«IfcLvl»				
Sensor Mount	«SnrMount»				
Measurement Type	«MeasType»				
Level Units	«Units»				
Probe Length	«Probe Ln»				
Level Offset	«Lvl Ofst»				
Sensitivity	«Senstvty»				
Loop Control	«LoopCtrl»				
4mA point	«Set 4mA»				
20mA point	«Set 20mA»				
Damping	«Damping»				
Fault Choice	«Fault»				
Threshold	«Treshld»				
HART Poll Address	«Poll Adr»				
Level Trim	«Trim Lvl»				
Trim 4 mA	«Trim 4»				
Trim 20 mA	«Trim 20»				
Deadband	«DeadBand»				
Trim 20 mA	«Trim 20»				
Float 1 Threshold	«F1 Tresh»				
Float 1 Polarity	«F1 Polar»				
Float 2 Threshold	«F2 Tresh»				
Float 2 Polarity	«F2 Polar»				
Drive Amplitude	«Drv Ampl»				
Minimum Separation	«Min Sep»				
# of Counts	«F1 Cnts»				
	«F2 Cnts»				
Conversion Factor	«Conv Fct»				
Electronics temperature	«ElecTemp»				
Max temperature	«Max Temp»				
Min temperature	«Min Temp»				
Software Version					
New Password					
Name					
Date					
Time					

IMPORTANT

SERVICE POLICY

Owners of Magnetrol products may request the return of a control; or, any part of a control for complete rebuilding or replacement. They will be rebuilt or replaced promptly. Magnetrol International will repair or replace the control, at no cost to the purchaser, (or owner) ***other than transportation cost*** if:

a. Returned within the warranty period; and,
b. The factory inspection finds the cause of the malfunction to be defective material or workmanship.

If the trouble is the result of conditions beyond our control; or, is **NOT** covered by the warranty, there will be charges for labour and the parts required to rebuild or replace the equipment.
In some cases, it may be expedient to ship replacement parts; or, in extreme cases a complete new control, to replace the original equipment before it is returned. If this is desired, notify the factory of both the model and serial numbers of the control to be replaced. In such cases, credit for the materials returned, will be determined on the basis of the applicability of our warranty.
No claims for misapplication, labour, direct or consequential damage will be allowed.

RETURNED MATERIAL PROCEDURE

So that we may efficiently process any materials that are returned, it is essential that a “Return Material Authorisation” (RMA) form will be obtained from the factory. It is mandatory that this form will be attached to each material returned. This form is available through Magnetrol’s local representative or by contacting the factory. Please supply the following information:

1. Purchaser Name
2. Description of Material
3. Serial Number and Ref Number
4. Desired Action
5. Reason for Return
6. Process details

All shipments returned to the factory must be by prepaid transportation. Magnetrol ***will not accept*** collect shipments.

All replacements will be shipped FOB factory.

BULLETIN N°: BE 46-648.0
EFFECTIVE: MARCH 2007
SUPERSEDES: New

Magnetrol®

www.magnetrol.com

BENELUX	Heikensstraat 6, 9240 Zele, België Tel. +32 (0)52.45.11.11 • Fax. +32 (0)52.45.09.93 • E-Mail: info@magnetrol.be
DEUTSCHLAND	Alte Ziegelei 2-4, D-51491 Overath Tel. 02204 / 9536-0 • Fax. 02204 / 9536-53 • E-Mail: vertrieb@magnetrol.de
FRANCE	40 - 42, rue Gabriel Péri, 95130 Le Plessis Bouchard Tél. 01.34.44.26.10 • Fax. 01.34.44.26.06 • E-Mail: magnetrolfrance@magnetrol.fr
ITALIA	Via Arese 12, I-20159 Milano Tel. (02) 607.22.98 (R.A.) • Fax. (02) 668.66.52 • E-Mail: mit.gen@magnetrol.it
UNITED KINGDOM	Unit 1 Regent Business Centre, Jubilee Road Burgess Hill West Sussex RH 15 9TL Tel. (01444) 871313 • Fax (01444) 871317 • E-Mail: sales@magnetrol.co.uk
INDIA	E-22, Anand Niketan, New Delhi - 110 021 Tel. 91 (11) 41661840 • Fax 91 (11) 41661843 • E-Mail: info@magnetrolindia.com